Aero Design Ltd.

Work Order Control Sheet

Work Order#: 2017-212 **Date Opened:** 12 December 2017 **Title:** Fabrication

Aircraft OEM: Eurocopter **Aircraft Model:** AS350 **Product Type:** Bike Rack Base Components **Product Model:** N/A **Quantity:** 50

Work Order Contents

	Initial or N/A
Work Order/Build Sheets (Procedures Provided)	CB/JC
Additional Work Sheets (Standard Practice)	N/A
Drawings (See List Below)	CB/JC
Parts Distribution Sheet	N/A
Sub Component Tags	N/A
Completed Certification (Original)	JC
Time Sheet (R&D)	N/A
Notes	N/A

Build Sheet Contents

	Initial or N/A
Tasks Initialled	JC
Dual Inspections Initialled	JC

Drawing List

Drawing #	Rev #	Description	Initial or N/A
100230	0	Beam Fabrication	CB/JC

Component Completion

	As Instructed
Quantity Complete on This Work Order	50/50
Quantity Incomplete on This Work Order	0
Further Processing Required Before Release	N/A
Release to Stock as Components	N/A

Certification

	Initial or N/A
Form One Completed	N/A
Serviceable (Green) Tag Completed	N/A
In Process (Yellow) Tag Completed	JC
Unserviceable (Red) Tag Completed	N/A
Parts Placed in Stores for Distribution	N/A

Additional Documentation

	Initial or N/A
Documentation of a minor change	N/A
Non-Conformance Report Required	N/A
Service Difficulty Report Required	N/A

Billing

	Initial or N/A
Local (Aero Design)	JC
Research and Development	N/A
Third Party	N/A

	Print	Sign	SCA	Date
Work performed by:	N. REKVÉ / J. CLARKE		AD02	11 JAN 2019
ICC / Dual Inspection preformed by:	J. REKVÉ		AD01	11 JAN 2019
Work Order closed by:	J. CLARKE		AD02	13 JUNE 2019

Aero Design
Parts Distribution Sheet

AS350 BIKE RACK BASE

WO# 2017-212

From PO or WO #	Quantity	Description	Part Number	For WO #
17103	25 @ 24 7/8	1x8 6061-T6 BAR		
17053	25 @ 10 7/8	1x4 6061-T6 BAR		
16057	~~to~~ 8 100	3/8 HELICOIL	3591-6CN 562	

Approved Manufacturing Facility 73-04 Form 20.F.06 Rev. Original 27 May 2013

Aero Design Ltd.

Component Fabrication

100215-01 Bicycle Rack Base

Work Order Number: 2017-212 **Date:** 12 Dec 2017

Notes:

Drilling speed to 320 RPM.

Rapid Tap cutting fluid or equivalent coolant required

Rail

	Tasks	SCA
1.	Record material PO below	N/A
2.	Cut 78230 step extrusion to 82.75" in length	N/A
	On each end, cut the side and bottom walls shorter by 1/8" leaving the tread rail full length IAW drawing 100215 Detail B	N/A
3.	Deburr one end on buffing wheel	N/A
4.	On the bottom wall, place a mark 7/8" from each end and drill 3/8" hole which will act as a drain and allow ventilation during the welding process	N/A

Manual Mill

5.	While supporting the long end of the rail, clamp aft end (dependant on LH or RH) into the manual mill vice	N/A
6.	Using standard practices, zero off of the end and back of the part and set zero on the X and Y axis on the digital display	N/A
7.	Set table to drill locations IAW drawing 100215 Detail C and bore .75" holes	N/A
8.	Deburr edges and holes	N/A

Welding

9.	Wipe parts with Acetone or equivalent solvent	N/A
10.	Place 100226-01 bushings in .75" holes and locate them IAW drawing 100215 Detail C	N/A
11.	Weld IAW drawing 100215	N/A
12.	Place cap 82720-04 on each end and weld IAW drawing 100215 Detail B	N/A

Beam

13.	Cut 1" x 8" 6061-T6 extruded bar to 24 7/8" in length.	NR	JC
14.	Install material in CNC mill ensuring RH edge overhangs for tool clearance	NR	JC
15.	Set material stop to ensure subsequent steps and parts return to the same location	NR	JC
16.	Load and run program 021 and 022	NR	JC
17.	Rotate part 180 degrees on plane	NR	JC
18.	Load and run program 021 and 022	NR	JC
19.	Separate parts by cutting along mark scribed during machining process	NR	JC

20.	Install 100230 jig plate into CNC straddling vices and lock down	NR
21.	Using a soft face hammer, tap the jig down to ensure it is seated	NR
22.	Zero table using standard practices	NR
23.	Mount separated part on jig using 1/4" bolts	NR
24.	Load and run program 023	NR
25.	Using vertical band saw, remove tooling lug at the outboard end	NR
26.	On manual mill, zero off the end of the part using standard machining practices	NR
27.	Using standard practices, machine surface area from which lug was removed	NR
28.	Inspect finish and dimensions of final part.	

Rack Base Assembly

29.	Insert Helicoils in threaded bushings IAW drawing 100226	N/A
30.	Install bike rack base beams into jig fixture	N/A
31.	Install rails into beams	N/A
32.	Weld IAW drawing 100215	N/A
33.	Inspect finish and dimensions of final part.	N/A
34.	Tag completed parts IAW Aero Design MPM.	N/A

Material Purchase Order Number 17103/17053

Batch Quantity 50

BICYCLE RACK BEAM ADAPTER – 100230-02

Work Order: 2017-212 Quantity: 50 **Complete** (initial or SCA #)

Date Open: 12 DEC 2017

General

These instructions apply to fabrication of AS350/AS355 bicycle rack beam adapters. Refer to the following drawings, at the current revision, for dimensions and details:

100230, Revision 0 – Bicycle Rack Beam Fabrication

1. Cut stock: J.F. gc
   a. Cut 1" x 4" 6061-T6 aluminum bar to 10.88" long.
   b. Record PO.

2. Machining: NR gc
   a. Insert stock on CNC using 1/8" deep vise jaws.
   b. Set 0 on top left far corner.
   c. Run program to machine slot and holes.
   d. Deburr machined edges.
   e. Flip part and run program to machine slot on opposite side.
   f. Tag in process parts.

3. Cutting: NR gc
   a. Cut stock in half on long dimension.
   b. Update tag for process parts.

4. Machining: NR gc
   a. Locate part in vise, flanged edge down, supported on machined edge.
   b. Set 0 on top left far corner.
   c. Run program to face to height and drill/tap holes. Ensure finished height is in accordance with drawing.
   d. Run tap to bottom of threaded holes.
   e. Update tag for in process parts.

5. Machining: NR gc.
   a. Locate part in vise, flanged edge up
   b. Set 0 on top left far corner.
   c. Run program to face to height and taper. Ensure finished height is in accordance with drawing.
   d. Update tag for in process parts.

6. Deburring: NR gc.
   a. Deburr all edges.
   b. Update tag for in process parts.

Complete
(initial or SCA #)

7. Painting Prep:
    a. Thoroughly clean parts and etch with Alumaprep in accordance with manufacturers instructions.
    b. Apply Alodine to parts in accordance with manufacturers instructions.
    c. Update tag for in process parts.

8. Helicoils:
    a. Install 3/8-24 self locking helicoils into threaded holes. Apply a drop of Loctite 242 to threads before installing helicoil.
    b. Update tag for in process parts.

9. Painting:
    a. Prime parts with Endura EP-2C epoxy primer or equivalent primer in accordance with manufacturers instructions.
    b. Paint parts with Endura EX-2C polyurethane paint or equivalent paint in accordance with manufacturers instructions.
    c. Update tag for in process parts.

10. Final Inspection:
    To be completed by a different person than the previous steps.
    a. Inspect 100230-02 beam adapters for conformity to drawings.
    b. Issue green tag for completed parts.

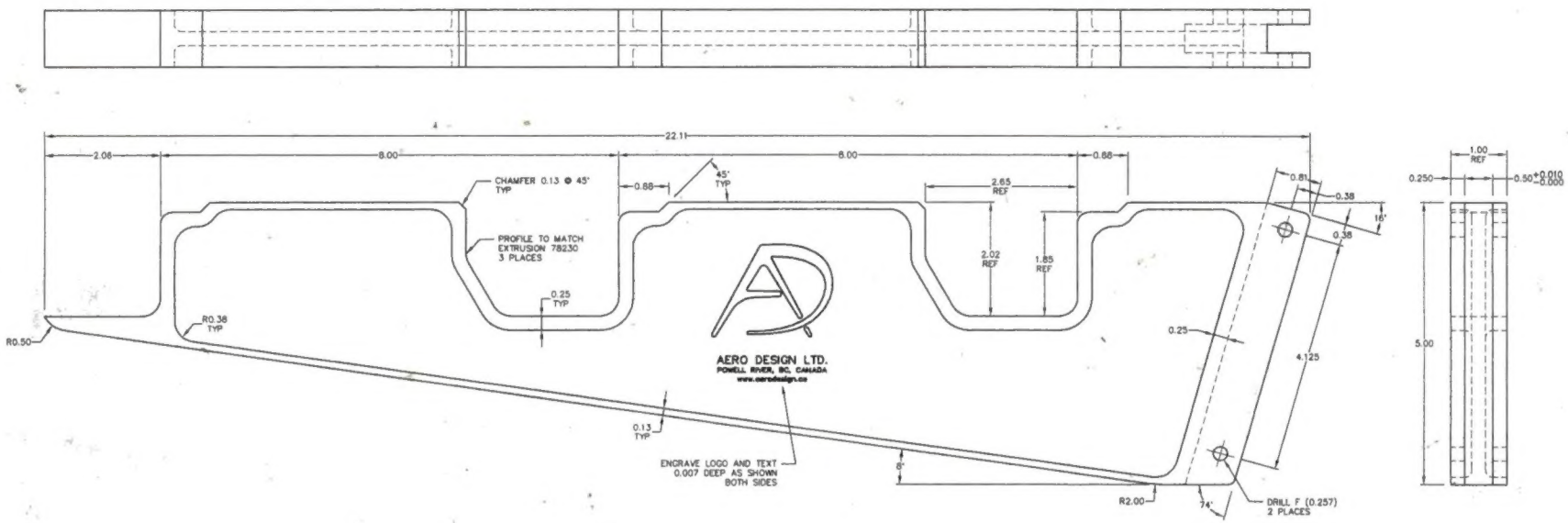
Aero Design Ltd.

Type:

Work Order: 2017-212

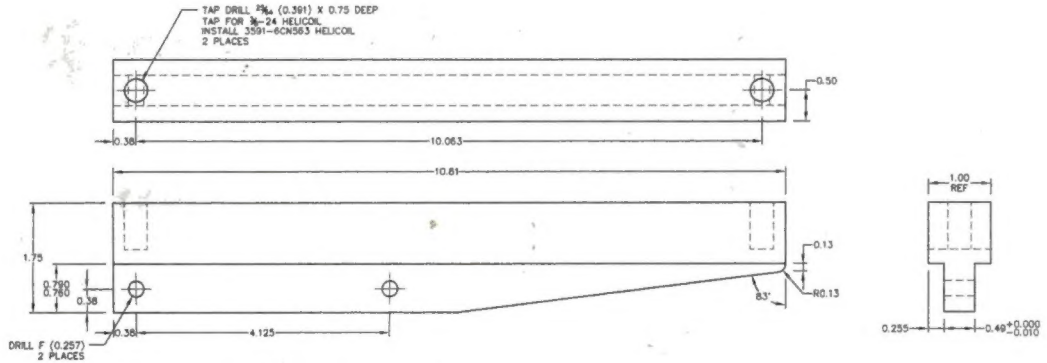
Task	By	Notes	Date
Bracket 100230-02 x 10 requires paint	CK		

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE		



(01) BEAM

PART TO BE CNC MACHINED USING THIS DRAWING AS A TEMPLATE



(02) ATTACHMENT BRACKET

NOTES

1. REMOVE ALL BURRS AND BREAK SHARP EDGES.
2. FINISH, 100230-02 ATTACHMENT BRACKET:
   THOROUGHLY DEGREASE, ALODINE, EPOXY PRIME AND POLYURETHANE PAINT.

QTY	QTY	PART NO.	ITEM	DESCRIPTION	MATERIAL	MATERIAL SPEC	STOCK SIZE
02	01	LIST OF MATERIALS					
2		3591-6CN563		SELF-LOCKING HELICOIL			
		100230-02	02	ATTACHMENT BRACKET	6061-T6 ALUMINUM	QQ-A-200/8	4 X 1 FLAT BAR
		100230-01	01	BEAM	6061-T6 ALUMINUM	QQ-A-200/8	8 X 1 FLAT BAR

APPROVALS		DATE
DRAWN:	JEFF CLARKE	13 JUNE 2016
CHECKED:	JASON REKVE	13 JUNE 2016

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:
DECIMALS X.XXX ±0.010, X.XX ±0.03, X.X ±0.1
ANGLES ±1/2°

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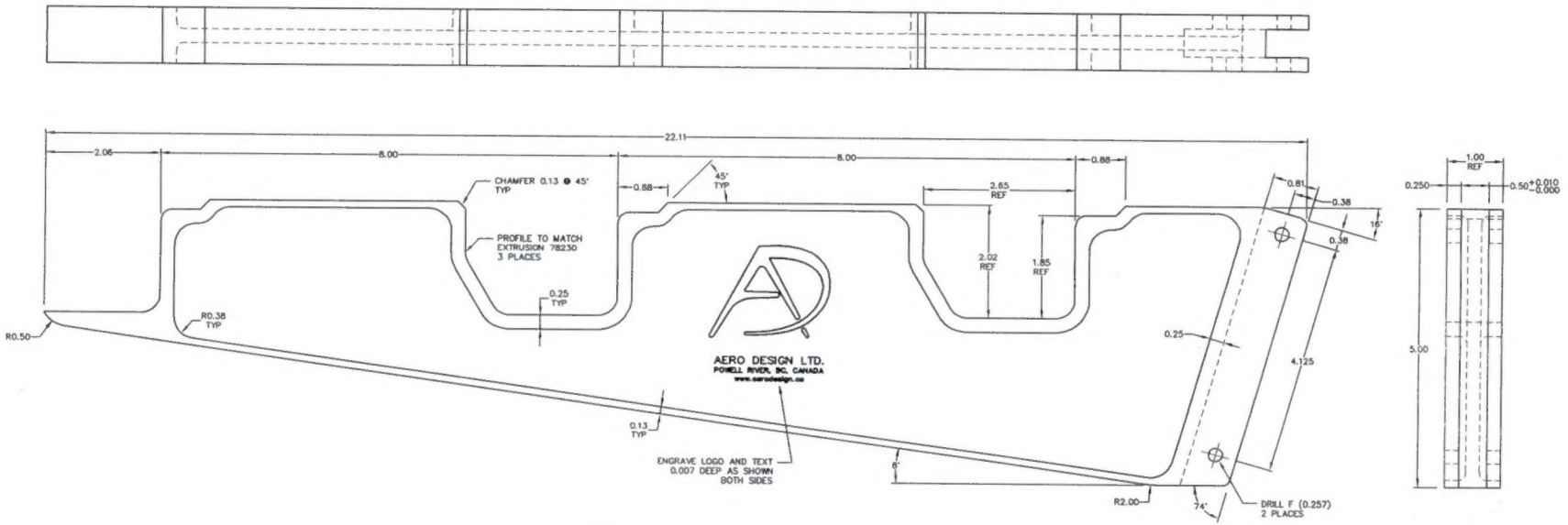
AIRBUS HELICOPTERS AS350/AS355, EC130
BICYCLE RACK INSTALLATION
BEAM FABRICATION

SCALE 1 : 1	DWG. SIZE	DWG. NO.	REV.
SHEET 1 OF 1	A1	100230	0

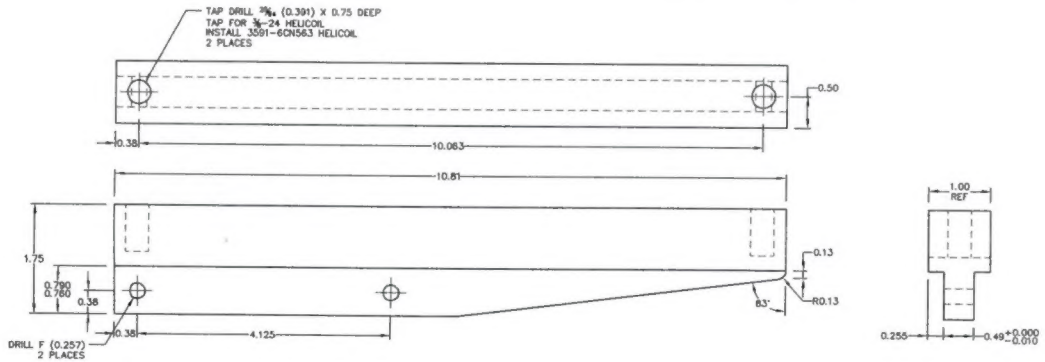
2017-212

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE		



(01) BEAM

PART TO BE CNC MACHINED USING THIS DRAWING AS A TEMPLATE



(02) ATTACHMENT BRACKET

NOTES

1. REMOVE ALL BURRS AND BREAK SHARP EDGES.
2. FINISH, 100230-02 ATTACHMENT BRACKET: THOROUGHLY DEGREASE, ALODINE, EPOXY PRIME AND POLYURETHANE PAINT.

LIST OF MATERIALS

QTY	QTY	PART NO.	ITEM	DESCRIPTION	MATERIAL	MATERIAL SPEC	STOCK SIZE
2		3591-6CN563		SELF-LOCKING HELICOIL			
		100230-02	02	ATTACHMENT BRACKET	6061-T6 ALUMINUM	QQ-A-200/8	4 X 1 FLAT BAR
		100230-01	01	BEAM	6061-T6 ALUMINUM	QQ-A-200/8	8 X 1 FLAT BAR

APPROVALS		DATE
DRAWN:	JEFF CLARKE	13 JUNE 2016
CHECKED:	JASON REKVE	13 JUNE 2016

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:

DECIMALS	ANGLES
X.XXX ±0.010	±1/2°
X.XX ±0.03	
X.X ±0.1	

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AIRBUS HELICOPTERS AS350/AS355, EC130
BICYCLE RACK INSTALLATION
BEAM FABRICATION

SCALE 1 : 1	DWG. SIZE	DWG. NO.	REV.
SHEET 1 OF 1	A1	100230	0